

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 15 May 2001 (15.05.01)	
International application No. PCT/NL00/00593	Applicant's or agent's file reference HO1009PCT/Kr/K
International filing date (day/month/year) 25 August 2000 (25.08.00)	Priority date (day/month/year) 30 August 1999 (30.08.99)
Applicant VAN DER VEEN, Sjoerd, Odrik	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

05 March 2001 (05.03.01)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Juan Cruz Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
CORUS TECHNOLOGY BV
Attn. KRUIT, J.
P.O. Box 10000
NL-1970 CA IJmuiden
NETHERLANDS

29 NOV 2000

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing (day/month/year)	29/11/2000
Applicant's or agent's file reference H01009PCT/Kr/K	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/NL 00/ 00593	International filing date (day/month/year) 25/08/2000
Applicant CORUS STAAL BV et al.	

1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.


☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90*bis*.1 and 90*bis*.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer José Mendo Pérez
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NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference H01009PCT/Kr/K	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/NL 00/ 00593	International filing date (day/month/year) 25/08/2000	(Earliest) Priority Date (day/month/year) 30/08/1999
Applicant CORUS STAAL BV et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 02 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.

1



None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 00/00593

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B21D51/26 B21D22/26 B65D81/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B21D B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 802 056 A (JAEGER W) 9 April 1974 (1974-04-09) cited in the application the whole document ----	1,7,8
A	US 4 914 937 A (BULSO JR JOSEPH D ET AL) 10 April 1990 (1990-04-10) ----	
A	GB 2 261 501 A (HUANG KIN SHEN) 19 May 1993 (1993-05-19) ----	
A	US 3 970 068 A (SATO SHOTARO) 20 July 1976 (1976-07-20) ----	
A	US 4 741 324 A (INA SHIZUO ET AL) 3 May 1988 (1988-05-03) -----	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

22 November 2000

Date of mailing of the international search report

29/11/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-2016

Authorized officer

Peeters, L

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NL 00/00593

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3802056	A	09-04-1974	US 3726106 A	10-04-1973
US 4914937	A	10-04-1990	US 4782685 A	08-11-1988
			GB 2213082 A,B	09-08-1989
			HK 27593 A	02-04-1993
			JP 1150418 A	13-06-1989
			JP 2610958 B	14-05-1997
			SG 4193 G	12-03-1993
GB 2261501	A	19-05-1993	NONE	
US 3970068	A	20-07-1976	JP 50008687 A	29-01-1975
			AR 200174 A	24-10-1974
			AT 339128 B	10-10-1977
			AT 155774 A	15-01-1977
			AT 346679 B	27-11-1978
			AT 990675 A	15-03-1978
			AU 476853 B	07-10-1976
			AU 6519974 A	07-08-1975
			BE 812414 A	01-07-1974
			CA 1014525 A	26-07-1977
			CH 580010 A	30-09-1976
			DE 2426129 A	05-12-1974
			DK 89474 A	20-01-1975
			ES 423862 A	16-10-1976
			FI 42274 A	30-11-1974
			FR 2231342 A	27-12-1974
			GB 1455188 A	10-11-1976
			IT 1002970 B	20-05-1976
			NL 7401810 A	03-12-1974
			SE 7403696 A	02-12-1974
			ZA 7400740 A	24-12-1974
US 4741324	A	03-05-1988	JP 1773659 C	14-07-1993
			JP 4058329 B	17-09-1992
			JP 61253023 A	10-11-1986
			GB 2178161 A,B	04-02-1987

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

RECORD COPY

For receiving Office use only	
PCT/NL	00/00593
International Application No.	
25 AUG 2000 (25.08.00)	
International Filing Date	
BUREAU VOOR DE INDUSTRIËLE EIGENDOM P.O.T. INTERNATIONAL APPLICATION	
Name of receiving Office and "PCT International Application"	
Applicant's or agent's file reference (if desired) (12 characters maximum) HO1009PCT/Kr /K	

Box No. I TITLE OF INVENTION Inzetstuk voor een houder met een te verwarmen of te koelen vloeistof, houder met een dergelijk inzetstuk, en werkwijze voor het vormen van een inzetstuk	
Box No. II APPLICANT	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.) Corus Staal BV P.O. Box 10000 1970 CA IJmuiden The Netherlands	<input type="checkbox"/> This person is also inventor. Telephone No. +31(251)491453 Facsimile No. +31(251)470252 Teleprinter No. 35211 hovs nl
State (that is, country) of nationality: NL	State (that is, country) of residence NL
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input checked="" type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.) VAN DER VEEN, Sjoerd Odrik Impasse Ernest Picard 63100 CLERMONT-FERRAND France	This person is: <input type="checkbox"/> applicant only <input checked="" type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)
State (that is, country) of nationality: NL	State (that is, country) of residence: FR
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
<input type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet.	
Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE	
The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: <input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) KRUIT, Jan Corus Technology BV P.O. Box 10000 1970 CA IJMUIDEN The Netherlands	Telephone No. +31(251)491453 Facsimile No. +31(251)470252 Teleprinter No. 35211 hovs nl
<input type="checkbox"/> Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.	

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(*mark the applicable check-boxes; at least one must be marked*):

Regional Patent

- ☒ **AP ARIPO Patent:** ~~GH~~Ghana, ~~GM~~Gambia, ~~KE~~Kenya, ~~LS~~Lesotho, ~~MW~~Malawi, ~~SD~~Sudan, ~~SL~~Sierra Leone, ~~SZ~~Swaziland, ~~UG~~Uganda, ~~ZW~~Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ **EA Eurasian Patent:** ~~AM~~Armenia, ~~AZ~~Azerbaijan, ~~BY~~Belarus, ~~KG~~Kyrgyzstan, ~~KZ~~Kazakhstan, ~~MD~~Republic of Moldova, ~~RU~~Russian Federation, ~~TJ~~Tajikistan, ~~TM~~Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP European Patent:** ~~AT~~Austria, ~~BE~~Belgium, ~~CH~~ and ~~LI~~Switzerland and Liechtenstein, ~~CY~~Cyprus, ~~DE~~Germany, ~~DK~~Denmark, ~~ES~~Spain, ~~FI~~Finland, ~~FR~~France, ~~GB~~United Kingdom, ~~GR~~Greece, ~~IE~~Ireland, ~~IT~~Italy, ~~LU~~Luxembourg, ~~MC~~Monaco, ~~NL~~Netherlands, ~~PT~~Portugal, ~~SE~~Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA OAPI Patent:** ~~BF~~Burkina Faso, ~~BJ~~Benin, ~~CF~~Central African Republic, ~~CG~~Congo, ~~CI~~Côte d'Ivoire, ~~CM~~Cameroon, ~~GA~~Gabon, ~~GN~~Guinea, ~~GW~~Guinea-Bissau, ~~ML~~Mali, ~~MR~~Mauritania, ~~NE~~Niger, ~~SN~~Senegal, ~~TD~~Chad, ~~TG~~Togo, and any other State which is a member State of OAPI and a Contracting State of the *(if other kind of protection or treatment desired, specify on dotted line)*

National Patent (if other kind of protection or treatment desired, specify on dotted line)

- | | |
|---|--|
| <input checked="" type="checkbox"/> AE United Arab Emirates | <input checked="" type="checkbox"/> LR Liberia |
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> LS Lesotho |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LT Lithuania |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LU Luxembourg |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> MD Republic of Moldova |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MG Madagascar |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BG Bulgaria | |
| <input checked="" type="checkbox"/> BR Brazil | <input checked="" type="checkbox"/> MN Mongolia |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MW Malawi |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> MX Mexico |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> NO Norway |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> NZ New Zealand |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> CZ Czech Republic | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> DK Denmark | <input checked="" type="checkbox"/> RU Russian Federation |
| <input checked="" type="checkbox"/> EE Estonia | <input checked="" type="checkbox"/> SD Sudan |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> FI Finland | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> SI Slovenia |
| <input checked="" type="checkbox"/> GD Grenada | <input checked="" type="checkbox"/> SK Slovakia |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> IN India | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> IS Iceland | |
| <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> UZ Uzbekistan |
| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | <input checked="" type="checkbox"/> ZA South Africa |
| <input checked="" type="checkbox"/> KR Republic of Korea | <input checked="" type="checkbox"/> ZW Zimbabwe |
| <input checked="" type="checkbox"/> KZ Kazakhstan | Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet: |
| <input checked="" type="checkbox"/> LC Saint Lucia | <input checked="" type="checkbox"/> Costa Rica; Morocco |
| <input checked="" type="checkbox"/> LK Sri Lanka | <input checked="" type="checkbox"/> Dominica; United Republic of Tanzania |

Precautionary Designation Statement In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. *Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.*

Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application:* regional Office	international application: receiving Office
item (1) (30.08.99) 30 August 1999	1012937	NL		
item (2)				
item (3)				

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): 1

* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):	Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):		
ISA /	Date (day/month/year) 9 May 2000	Number 1012937	Country (or regional Office) EPO Rijswijk

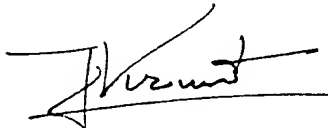
Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following number of sheets: request : 3 description (excluding sequence listing part) : 5 claims : 2 abstract : 1 drawings : 1 sequence listing part of description : Total number of sheets : 12	This international application is accompanied by the item(s) marked below: 1. <input checked="" type="checkbox"/> fee calculation sheet 2. <input type="checkbox"/> separate signed power of attorney 3. <input type="checkbox"/> copy of general power of attorney; reference number, if any: 4. <input type="checkbox"/> statement explaining lack of signature 5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s): 1 6. <input type="checkbox"/> translation of international application into (language): 7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material 8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form 9. <input type="checkbox"/> other (specify): translation of the priority document
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Figure of the drawings which should accompany the abstract: 1	Language of filing of the international application: Dutch
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Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).


ir. J. Kruit

For receiving Office use only		2. Drawings: <input checked="" type="checkbox"/> received: <input type="checkbox"/> not received:
1. Date of actual receipt of the purported international application:	25 AUG 2000 (25.08.00)	
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority (if two or more are competent): ISA /	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.	

For International Bureau use only	
Date of receipt of the record copy by the International Bureau:	18 SEPTEMBER 2000 (18.09.00)

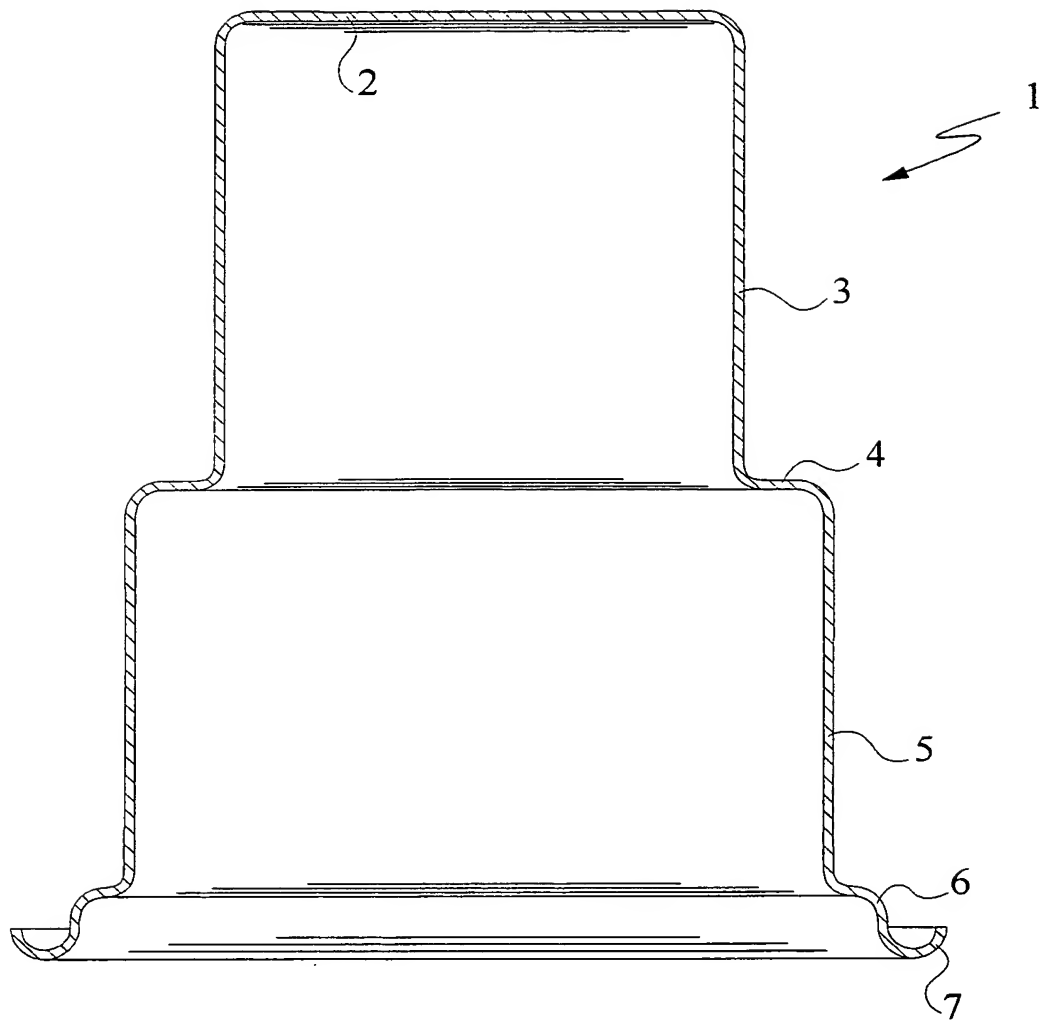


Fig. 1

INZETSTUK VOOR EEN HOUDER MET EEN TE VERWARMEN OF TE KOELEN VLOEISTOF, HOUDER MET EEN DERGELIJK INZETSTUK, EN WERKWIJZE VOOR HET VORMEN VAN EEN INZETSTUK

5 De uitvinding heeft betrekking op een inzetstuk voor een houder met een te verwarmen of te koelen product, welk inzetstuk een in hoofdzaak langwerpige ruimte bepaalt die bedoeld is voor het opnemen van een verwarmings- of koelmiddel, waarbij het inzetstuk een omtrekswand met een gesloten einde en een open einde bezit, welk open einde voorzien is van een naar buiten stekende rand ter bevestiging aan de houder,
10 waarbij de omtrekswand uit van elkaar verschillende gedeelten bestaat. De uitvinding heeft tevens betrekking op een houder voorzien van een dergelijk inzetstuk, en op een werkwijze voor het vormen van zo'n inzetstuk.

Een houder voor dranken met een inzetstuk met daarin een verwarmingsmiddel of een koelmiddel om de drank te kunnen verwarmen of te kunnen koelen is bekend. Het
15 is hiermee mogelijk om op iedere gewenste plaats bijvoorbeeld warme koffie te nuttigen. Hiertoe wordt het inzetstuk gewoonlijk aan de bodem van een bus bevestigd, waarna de bus met koffie gevuld wordt, een deksel op de gevulde bus aangebracht wordt, en de koffie gesteriliseerd wordt. Daarna wordt gewoonlijk een insert in het inzetstuk geplaatst, in welk insert bijvoorbeeld een compartiment met water en een
20 daarvan gescheiden compartiment met ongebluste kalk aanwezig is. Door de scheiding tussen water en kalk te perforeren of anderszins op te heffen reageert de ongebluste kalk met het water volgens een exotherme reactie, waarbij voldoende warmte vrijkomt om de koffie tot een gewenste temperatuur te verwarmen. In de houder kan ook voedsel of een ander product opgenomen zijn.

25 Een dergelijke houder is bijvoorbeeld bekend uit het Amerikaanse octrooischrift 3.802.056. Dit document toont een houder met een inzetstuk dat om de onderrand van de een drankenbus gefelst is, en waarbij in het inzetstuk een tweede inzetstuk geplaatst is, waarin een produkt geplaatst is dat op een gewenst moment een exotherme of endotherme reactie geeft. Volgens een uitvoeringsvorm bezitten beide inzetstukken
30 vanaf hun open einde een conisch gedeelte, dat overgaat in een cilindrisch gedeelte en via een afschuining naar een cilindrisch gedeelte met een kleinere diameter.

Bij voorkeur wordt gebruik gemaakt van een gebruikelijk formaat drankenbus, waarin voldoende ruimte is voor ten minste 200 ml drank en een inzetstuk met een volume van ongeveer 100 ml.

Opdat de warmtedoorgang van het verwarmingsmiddel naar de drank zo goed
5 mogelijk is, moet het oppervlak van het inzetstuk zo groot mogelijk zijn. Anderzijds is het gewenst dat de vervaardigingskosten zo laag mogelijk zijn, zodat het gewenst is de hoeveelheid materiaal voor het inzetstuk zo laag mogelijk te houden. Beide wensen resulteren er onder meer in, dat er naar gestreefd wordt de materiaaldikte van het
10 inzetstuk zo gering mogelijk te maken, zodat de warmteoverdracht per oppervlakte-eenheid zo groot mogelijk is.

In veel gevallen wordt een drankenbus onder druk gevuld, of wordt een gevulde drankenbus aan een sterilisatiebehandeling onderworpen. In beide gevallen moet het inzetstuk de daarop uitgeoefende druk zonder plastische vervorming van de wanden kunnen weerstaan.

15 Een nadeel van de uit het Amerikaanse octrooischrift 3.802.056 houder is dat de warmteoverdracht daarin relatief slecht is doordat twee in elkaar geschoven inzetstukken gebruikt worden. Deze houder is door het gebruik van twee inzetstukken tevens relatief duur.

Het is een doel van de uitvinding een verbeterd inzetstuk te verschaffen.

20 Het is een ander doel van de uitvinding, een inzetstuk te verschaffen dat zo dun mogelijk is zonder dat de wanden plastisch vervormen bij het onder druk zetten van het inzetstuk.

Het is weer een ander doel een inzetstuk te verschaffen dat optimaal is gezien vanuit zowel het oogpunt van vervaardiging als vanuit het oogpunt van
25 warmteoverdracht.

Het is nog een ander doel een inzetstuk te verschaffen dat als enkelvoudig inzetstuk in de houder dienst kan doen.

Volgens een eerste aspect van de uitvinding worden een of meer van deze doelen bereikt met een inzetstuk van de in de aanhef genoemde soort, waarbij ieder gedeelte
30 van de omtrekswand een wandgedeelte met een in hoofdzaak constante diameter bezit, en waarbij twee aangrenzende gedeelten onderling verbonden zijn door een ringvormige overgang die in hoofdzaak loodrecht op de wandgedeelten staat.

Hiermee wordt bereikt dat het inzetstuk een maximale stijfheid kan krijgen bij een gegeven wanddikte, zodat voor het verkrijgen van een vereiste stijfheid de dunste wanddikte gekozen kan worden, zonder dat het inzetstuk onder de benodigde druk deformeert. Deze stijfheid wordt met name verkregen door de ringvormige overgangen.

5 Daarnaast bieden de gedeelten met een constante diameter een maximaal oppervlak per inhoud. Tevens is een ringvormige overgang zeer geschikt om een zekere deformatie in lengterichting van het inzetstuk op te nemen terwijl de wandgedeelten niet plastisch vervormd worden.

10 Bij voorkeur bestaat de omtrekswand uit twee gedeelten met een verschillende diameter. Gezien de lengte van een gebruikelijke drankenbus zijn twee gedeelten voldoende om het inzetstuk voldoende stijfheid te geven en de wand dun genoeg te maken, terwijl een inzetstuk uit twee gedeelten vanuit het oogpunt van vervaardiging het gunstigste is.

15 Bij voorkeur bezit het gedeelte dat aansluit op het gesloten einde van het inzetstuk een kleinere diameter dan de diameter van het gedeelte dat aansluit op het open einde. Door deze vormgeving is het inzetstuk gemakkelijk te vervaardigen. Tevens ontstaat tussen het inzetstuk en de wand van de houder waarin het inzetstuk aangebracht is een tussenruimte die bij het gesloten einde van het inzetstuk groter is dan bij het gedeelte van het inzetstuk dat aan de houder bevestigd is. Door deze vormgeving ontstaat in
20 ieder geval geen ruimte in het met product gevulde gedeelte van de houder die min of meer afgescheiden is van de rest van de inhoud van de houder, en waarin het product min of meer opgesloten blijft. Bij verwarmen van een product vanuit het inzetstuk kan het product in een afgescheiden ruimte gaan koken. Het koken van het product is ongewenst, aangezien de kwaliteit van het product erdoor achteruit kan gaan, en omdat
25 de warmteoverdracht naar het product sterk vermindert. Tevens wordt de rest van het product onvoldoende verwarmd. Bij het koelen van een product kan in een afgescheiden gedeelte ijsvorming optreden, en wordt de rest van het product onvoldoende gekoeld. Anders gesteld, de vormgeving volgens de uitvinding is zodanig dat de convectie langs het inzetstuk zo min mogelijk verstoord wordt.

30 Bij voorkeur is het inzetstuk vervaardigd uit verpakkingsstaal. Staal is een relatief goedkoop materiaal dat goed bewerkt kan worden om de gewenste vorm van het

inzetstuk te verkrijgen. Andere materialen, zoals aluminium, zouden echter eventueel ook gebruikt kunnen worden.

Bij voorkeur is het verpakingsstaal met kunststof bekleed. Hierdoor ontstaat bescherming tegen corrosie en tegen beïnvloeding van het product in de houder door
5 het verpakingsstaal.

Volgens een voorkeursuitvoering is het inzetstuk door dieptrekken vervaardigd. Dieptrekken is een zeer geschikte wijze om een product met de vormgeving van het inzetstuk te vervaardigen, doordat met dieptrekken op eenvoudige wijze langwerpige producten met een gesloten einde vervaardigd kunnen worden. Een omtrekswand uit
10 wandgedeelten met een constante diameter met ringvormige overgangen kan in enkele dieptrekstappen vervaardigd worden, waarbij gelijktijdig het gedeelte met het gesloten einde een kleinere diameter zal bezitten dan het gedeelte met het open einde.

Volgens een tweede aspect van de uitvinding is voorzien in een houder voor een te verwarmen of te koelen product, waarbij de houder volgens de uitvinding voorzien is
15 van een inzetstuk zoals hierboven omschreven is.

Volgens een derde aspect van de uitvinding is voorzien in een werkwijze voor het vormen van een inzetstuk voor een houder voor een te verwarmen of te koelen product, welk inzetstuk dient ter opname van een verwarmings- of koelmiddel, en welk inzetstuk een langwerpige vorm met een omtrekswand en een open en een gesloten einde bezit.
20 Volgens de uitvinding wordt het inzetstuk door dieptrekken in ten minste twee dieptrekstappen vervaardigd, zodanig dat de omtrekswand van het inzetstuk uit twee gedeelten bestaat, die verschillende diameters bezitten.

Hiermee is een werkwijze gegeven waarmee op eenvoudige wijze een inzetstuk vervaardigd kan worden dat zo stijf mogelijk is.

25 Hoewel in het bovenstaande voornamelijk melding gemaakt is van een drankenbus met een te verwarmen drank, zal duidelijk zijn dat het inzetstuk volgens de uitvinding geschikt is voor het opnemen van zowel een verwarmingsmiddel als een koelmiddel, dat het te verwarmen of te koelen product zowel een drank, een voedingsmiddel alsook een ander product kan zijn, en dat de houder behalve een
30 drankenbus ook een ander soort houder kan zijn.

De uitvinding zal worden toegelicht aan de hand van een uitvoeringsvoorbeeld, onder verwijzing naar de tekening.

De enkele figuur toont een doorsnede door een inzetstuk volgens de uitvinding.

Het inzetstuk 1 bezit een gesloten bovineinde 2, een eerste wandgedeelte 3, een ringvormig overgangsgedeelte 4 naar een tweede wandgedeelte 5 en een naar buiten uitstekende rand 6, waarvan het buitenste randgedeelte 7 voorzien is ter bevestiging aan
5 een houder met een opening waar het inzetstuk doorheensteekt.

Het inzetstuk wordt vervaardigd door het dieptrekken van een blank uit verpakingsstaal, die in een uitvoering met kunststof bekleed is. Om het bovenste en het onderste gedeelte te vervaardigen wordt het dieptrekken in een aantal stappen uitgevoerd, waarbij eerst het onderste gedeelte 5 en vervolgens het bovenste gedeelte 3
10 diepgetrokken wordt. De uitstekende rand 6 wordt eventueel in een aparte stap gevormd; dit gebeurt op conventionele wijze.

Het ringvormige overgangsgedeelte 4 verbindt het bovenste gedeelte 3 met het onderste gedeelte 5. Deze ring 4 verschaft halverwege de hoogte een extra stijfheid aan het inzetstuk. Bij overdruk in een drankenbus bij het vullen onder druk of bij het
15 pasteuriseren of steriliseren komt het wandgedeelte 3, 5 van het inzetstuk van buitenaf onder druk te staan. Zonder de ring 4 is het wandgedeelte zo hoog, dat het wandgedeelte inknikt wanneer het materiaal van de wand te dun is. Het ringvormige gedeelte 4 dat volgens de uitvinding aangebracht is deelt de totale hoogte in feite op in twee halve hoogten, die door hun geringere (halve) hoogte minder snel inknikken, zodat
20 een dunner materiaal gebruikt kan worden.

Daarbij kan het ringvormige gedeelte 4 zelf als een soort schotelveer dienst doen en enige deformatie in lengterichting van het inzetstuk opnemen. Bij overdruk zal echter eerst het bovineinde 2 uitknikken.

Begrepen zal worden dat het bovenstaande uitvoeringsvoorbeeld de uitvinding
25 geenszins beperkt. De beschermingsomvang wordt bepaald door de navolgende conclusies.

CONCLUSIES

1. Inzetstuk voor een houder met een te verwarmen of te koelen product, welk
inzetstuk een in hoofdzaak langwerpige ruimte bepaalt die bedoeld is voor het
opnemen van een verwarmings- of koelmiddel, waarbij het inzetstuk een
omtrekswand met een gesloten einde en een open einde bezit, welk open einde
voorzien is van een naar buiten stekende rand ter bevestiging aan de houder,
waarbij de omtrekswand uit van elkaar verschillende gedeelten bestaat, met het
kenmerk, dat ieder gedeelte van de omtrekswand een wandgedeelte met een in
hoofdzaak constante diameter bezit, en dat twee aangrenzende gedeelten
onderling verbonden zijn door een ringvormige overgang die in hoofdzaak
loodrecht op de wandgedeelten staat.
2. Inzetstuk volgens conclusie 1, met het kenmerk, dat de omtrekswand uit twee
gedeelten met een verschillende diameter bestaat.
3. Inzetstuk volgens conclusie 2, met het kenmerk, dat het gedeelte dat aansluit op
het gesloten einde van het inzetstuk een kleinere diameter bezit dan de diameter
van het gedeelte dat aansluit op het open einde.
4. Inzetstuk volgens een der voorgaande conclusies, met het kenmerk, dat het
inzetstuk vervaardigd is uit verpakingsstaal.
5. Inzetstuk volgens conclusie 4, met het kenmerk, dat het verpakingsstaal met
kunststof bekleed is.
6. Inzetstuk volgens een der voorgaande conclusies, met het kenmerk, dat het
inzetstuk door dieptrekken vervaardigd is.
7. Houder voor een te verwarmen of te koelen product, voorzien van een inzetstuk
volgens een der voorgaande conclusies.

8. Werkwijze voor het vormen van een inzetstuk voor een houder voor een te
verwarmen of te koelen product, welk inzetstuk dient ter opname van een
verwarmings- of koelmiddel, en welk inzetstuk een langwerpige vorm met een
5 omtrekswand en een open en een gesloten einde bezit, met het kenmerk, dat het
inzetstuk door dieptrekken in ten minste twee dieptrekstappen vervaardigd wordt,
zodanig dat de omtrekswand van het inzetstuk uit twee gedeelten bestaat, die
verschillende diameters bezitten.

UITTREKSEL

De uitvinding heeft betrekking op een inzetstuk voor een houder met een te verwarmen of te koelen product, welk inzetstuk een in hoofdzaak langwerpige ruimte bepaalt die bedoeld is voor het opnemen van een verwarmings- of koelmiddel, waarbij het inzetstuk een omtrekswand met een gesloten einde en een open einde bezit, welk open einde voorzien is van een naar buiten stekende rand ter bevestiging aan de houder.

Volgens de uitvinding is de omtrekswand voorzien van een verstevigingsmiddel, bij voorkeur een getrapte vorm.

De uitvinding heeft tevens betrekking op een houder voor een te verwarmen of te koelen product, voorzien van een dergelijk inzetstuk, en op een werkwijze voor het vormen van een inzetstuk.

PATENT COOPERATION TREATY

PCT

REC'D 20 SEP 2001

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference HO1009PCT/Kr/H	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/NL00/00593	International filing date (day/month/year) 25/08/2000	Priority date (day/month/year) 30/08/1999
International Patent Classification (IPC) or national classification and IPC B21D51/26		
Applicant CORUS STAAL BV et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand

05/03/2001

Date of completion of this report

18.09.2001

Name and mailing address of the international preliminary examining authority:



European Patent Office
D-80298 Munich

Authorized officer

Forciniti, M



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/NL00/00593

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):
Description, pages:

1-4 as originally filed

Claims, No.:

1-8 as originally filed

Drawings, sheets:

1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL00/00593

mentioned features a)-c) provides a maximum level of rigidity for a given wall thickness and moreover a maximized surface area for the heat transfer for a given volume.

- V.3 Claim 7, as disclosing a container with an insert piece according to claim 1 is therefore novel and considered to involve an inventive step with respect to Articles 33(2) and 33(3) PCT .
- V.4 On the basis of an amendment as suggested under item VIII), claim 8 discloses a process for forming an insert piece according to claim 1. Hence modified process claim 8 would therefore considered to be novel and to involve an inventive step with respect to Articles 33(2) and 33(3) PCT.
- V.5 **Claims 2-6** depending on claim 1 meet the requirements of the PCT in respect of novelty and/or inventive step.
- V.6 **Claims 1-8** are industrially applicable.

Re Item VII

Certain defects in the international application

- VII.1 The two-part form of **claim 1** should be revised with regard to item V.2) to meet the requirements of Rule 6.3(b) PCT.
- VII.2 The features of the **claims 1-8** are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

Re Item VIII

Certain observations on the international application

- VIII.1 It is clear from the description (page 3, líneas 20- 26) and claim 1 that the following features are essential to the definition of the forming process of an insert piece:

(1) the different sections have to be formed with constant diameters

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL00/00593

- (2) an annular transition perpendicular to the wall sections has to be formed
- (3) an outwardly rim has to be formed on the open end of the peripheral wall

Since independent claim 8 does not contain these features it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL00/00593

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

V.1 Reference is made to the following documents:

D1: GB-A-2 261 501 (HUANG KIN SHEN) 19 May 1993 (1993-05-19)

V.2 Document D1, which is considered to represent the most relevant state of the art, discloses:

An insert piece (3) for a container (2) holding a product which is to be heated or cooled, which insert piece (3) defines a substantially elongate space which is intended to accommodate a heating or cooling means (4, 5), the insert piece (3) having a peripheral wall (8) with a closed end and an open end (see fig. 2), which open end is provided with an outwardly projecting rim (see fig. 2) for attaching to the container (2).

The subject-matter of **claim 1** therefore differs from this known document D1 in that:

- a) the peripheral wall comprises different sections
- b) each section of the peripheral wall has a wall section of substantially constant diameter
- c) two adjacent sections are connected to one another by an annular transition which is substantially perpendicular to the wall sections.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as providing an insert piece with a maximum level of rigidity for a given wall thickness.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

An insert piece according to the preamble of claim 1 in combination with the above-

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/NL00/00593

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-8
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-8
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-8
	No:	Claims	

2. Citations and explanations see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

PATENT COOPERATION TREATY

ONTVAANGENIE

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

21 SEP 2001

PCT

To:

KRUIT, J.
CORUS TECHNOLOGY BV
P.O. Box 10000
NL-1970 CA IJmuiden
PAYS-BAS

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing (day/month/year)	18.09.2001
-------------------------------------	------------

Applicant's or agent's file reference
HO1009PCT/Kr/H

IMPORTANT NOTIFICATION

International application No.
PCT/NL00/00593

International filing date (day/month/year)
25/08/2000

Priority date (day/month/year)
30/08/1999

Applicant
CORUS STAAL BV et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference HO1009PCT/Kr/H	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/NL00/00593	International filing date (<i>day/month/year</i>) 25/08/2000	Priority date (<i>day/month/year</i>) 30/08/1999	
International Patent Classification (IPC) or national classification and IPC B21D51/26			
Applicant CORUS STAAL BV et al.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 6 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 05/03/2001	Date of completion of this report 18.09.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Forciniti, M Telephone No. +49 89 2399 7903



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/NL00/00593

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-4 as originally filed

Claims, No.:

1-8 as originally filed

Drawings, sheets:

1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL00/00593

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-8
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-8
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-8
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL00/00593

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

V.1 Reference is made to the following documents:

D1: GB-A-2 261 501 (HUANG KIN SHEN) 19 May 1993 (1993-05-19)

V.2 Document D1, which is considered to represent the most relevant state of the art, discloses:

An insert piece (3) for a container (2) holding a product which is to be heated or cooled, which insert piece (3) defines a substantially elongate space which is intended to accommodate a heating or cooling means (4, 5), the insert piece (3) having a peripheral wall (8) with a closed end and an open end (see fig. 2), which open end is provided with an outwardly projecting rim (see fig. 2) for attaching to the container (2).

The subject-matter of **claim 1** therefore differs from this known document D1 in that:

- a) the peripheral wall comprises different sections
- b) each section of the peripheral wall has a wall section of substantially constant diameter
- c) two adjacent sections are connected to one another by an annular transition which is substantially perpendicular to the wall sections.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as providing an insert piece with a maximum level of rigidity for a given wall thickness.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

An insert piece according to the preamble of claim 1 in combination with the above-

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL00/00593

mentioned features a)-c) provides a maximum level of rigidity for a given wall thickness and moreover a maximized surface area for the heat transfer for a given volume.

- V.3 Claim 7, as disclosing a container with an insert piece according to claim 1 is therefore novel and considered to involve an inventive step with respect to Articles 33(2) and 33(3) PCT .
- V.4 On the basis of an amendment as suggested under item VIII), claim 8 discloses a process for forming an insert piece according to claim 1. Hence modified process claim 8 would therefore considered to be novel and to involve an inventive step with respect to Articles 33(2) and 33(3) PCT.
- V.5 **Claims 2-6** depending on claim 1 meet the requirements of the PCT in respect of novelty and/or inventive step.
- V.6 **Claims 1-8** are industrially applicable.

Re Item VII

Certain defects in the international application

- VII.1 The two-part form of **claim 1** should be revised with regard to item V.2) to meet the requirements of Rule 6.3(b) PCT.
- VII.2 The features of the **claims 1-8** are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

Re Item VIII

Certain observations on the international application

- VIII.1 It is clear from the description (page 3, lines 20- 26) and claim 1 that the following features are essential to the definition of the forming process of an insert piece:

- (1) the different sections have to be formed with constant diameters

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL00/00593

- (2) an annular transition perpendicular to the wall sections has to be formed
- (3) an outwardly rim has to be formed on the open end of the peripheral wall



Since independent claim 8 does not contain these features it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

14
REC'D 20 SEP 2001

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference HO1009PCT/Kr/H		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/NL00/00593	International filing date (day/month/year) 25/08/2000	Priority date (day/month/year) 30/08/1999	
International Patent Classification (IPC) or national classification and IPC B21D51/26			
Applicant CORUS STAAL BV et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none">I <input checked="" type="checkbox"/> Basis of the reportII <input type="checkbox"/> PriorityIII <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicabilityIV <input type="checkbox"/> Lack of unity of inventionV <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statementVI <input type="checkbox"/> Certain documents citedVII <input checked="" type="checkbox"/> Certain defects in the international applicationVIII <input checked="" type="checkbox"/> Certain observations on the international application			
Date of submission of the demand 05/03/2001		Date of completion of this report 18.09.2001	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer Forciniti, M Telephone No. +49 89 2399 7903 	

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL00/00593

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-4 as originally filed

Claims, No.:

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These elements were available or furnished to this Authority in the following language: , which is:

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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL00/00593

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-8
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-8
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-8
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

V.1 Reference is made to the following documents:

D1: GB-A-2 261 501 (HUANG KIN SHEN) 19 May 1993 (1993-05-19)

V.2 Document D1, which is considered to represent the most relevant state of the art, discloses:

An insert piece (3) for a container (2) holding a product which is to be heated or cooled, which insert piece (3) defines a substantially elongate space which is intended to accommodate a heating or cooling means (4, 5), the insert piece (3) having a peripheral wall (8) with a closed end and an open end (see fig. 2), which open end is provided with an outwardly projecting rim (see fig. 2) for attaching to the container (2).

The subject-matter of **claim 1** therefore differs from this known document D1 in that:

- a) the peripheral wall comprises different sections
- b) each section of the peripheral wall has a wall section of substantially constant diameter
- c) two adjacent sections are connected to one another by an annular transition which is substantially perpendicular to the wall sections.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as providing an insert piece with a maximum level of rigidity for a given wall thickness.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

An insert piece according to the preamble of claim 1 in combination with the above-

mentioned features a)-c) provides a maximum level of rigidity for a given wall thickness and moreover a maximized surface area for the heat transfer for a given volume.

- V.3 Claim 7, as disclosing a container with an insert piece according to claim 1 is therefore novel and considered to involve an inventive step with respect to Articles 33(2) and 33(3) PCT .
- V.4 On the basis of an amendment as suggested under item VIII), claim 8 discloses a process for forming an insert piece according to claim 1. Hence modified process claim 8 would therefore considered to be novel and to involve an inventive step with respect to Articles 33(2) and 33(3) PCT.
- V.5 **Claims 2-6** depending on claim 1 meet the requirements of the PCT in respect of novelty and/or inventive step.
- V.6 **Claims 1-8** are industrially applicable.

Re Item VII

Certain defects in the international application

- VII.1 The two-part form of **claim 1** should be revised with regard to item V.2) to meet the requirements of Rule 6.3(b) PCT.
- VII.2 The features of the **claims 1-8** are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

Re Item VIII

Certain observations on the international application

- VIII.1 It is clear from the description (page 3, lines 20- 26) and claim 1 that the following features are essential to the definition of the forming process of an insert piece:

(1) the different sections have to be formed with constant diameters

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL00/00593

- (2) an annular transition perpendicular to the wall sections has to be formed
- (3) an outwardly rim has to be formed on the open end of the peripheral wall

Since independent claim 8 does not contain these features it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

(19) World Intellectual Property Organization
International Bureau



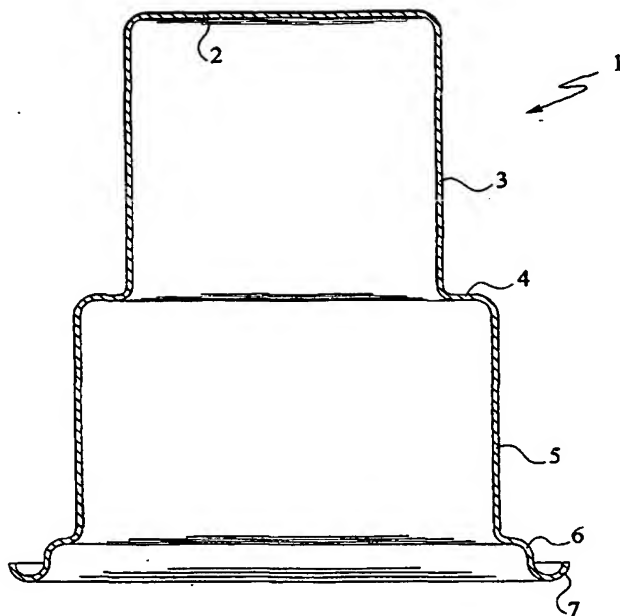
(43) International Publication Date
29 March 2001 (29.03.2001)

PCT

(10) International Publication Number
WO 01/21339 A1

- (51) International Patent Classification⁷: **B21D 51/26**, 22/26, B65D 81/34
- (21) International Application Number: **PCT/NL00/00593**
- (22) International Filing Date: 25 August 2000 (25.08.2000)
- (25) Filing Language: Dutch
- (26) Publication Language: English
- (30) Priority Data:
1012937 30 August 1999 (30.08.1999) NL
- (71) Applicant (for all designated States except US): **CORUS STAAL BV** [NL/NL]; P.O. Box 10000, NL-1970 CA IJmuiden (NL).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **VAN DER VEEN, Sjoerd, Odrik** [NL/FR]; Impasse Ernest Picard, F-63100 Clermont-Ferrand (FR).
- (81) Designated States (*national*): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— With international search report.
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: INSERT PIECE FOR A CONTAINER HOLDING A LIQUID WHICH IS TO BE HEATED OR COOLED, CONTAINER HAVING AN INSERT PIECE OF THIS NATURE, AND PROCESS FOR FORMING AN INSERT PIECE



(57) Abstract: The invention relates to an insert piece for a container holding a product which is to be heated or cooled, which insert piece defines a substantially elongate space which is intended to accommodate a heating or cooling means, the insert piece having a peripheral wall with a closed end and an open end, which open end is provided with an outwardly projecting rim for attaching to the container. According to the invention, the peripheral wall is provided with a reinforcement means, preferably a stepped form. The invention also relates to a container for a product which is to be heated or cooled, provided with an insert piece of this nature, and to process for forming an insert piece.

WO 01/21339 A1

INSERT PIECE FOR A CONTAINER HOLDING A LIQUID WHICH IS TO BE HEATED OR COOLED, CONTAINER HAVING AN INSERT PIECE OF THIS NATURE, AND PROCESS FOR FORMING AN INSERT PIECE

5 The invention relates to an insert piece for a container holding a product which is to be heated or cooled, which insert piece defines a substantially elongate space which is intended to accommodate a heating or cooling means, the insert piece having a peripheral wall with a closed end and an open end, which open end is provided with an outwardly projecting rim for attaching to the container, the peripheral wall comprising
10 different sections. The invention also relates to a container provided with an insert piece of this nature, and to a process for forming such an insert piece.

15 A container for drinks having an insert piece containing a heating means or a cooling means in order to enable the drink to be heated or cooled is known. It can be used, for example, to consume hot coffee at any desired location. For this purpose, the insert piece is usually attached to the base of a can, after which the can is filled with coffee, a lid is fitted to the filled can and the coffee is sterilized. Then, usually an insert
20 is placed into the insert piece, which insert holds, for example, a compartment containing water and a separate compartment containing unslaked lime. As a result of the partition between water and lime being perforated or removed in some other way, the unslaked lime reacts with the water in an exothermic reaction which releases
25 sufficient heat to heat the coffee to a desired temperature. The container may also hold food or some other product.

30 A container of this type is known, for example, from American patent 3,802,056. This document shows a container with an insert piece which is folded around the bottom edge of a drinks can, with a second insert piece, which holds a product which releases an exothermic or endothermic reaction at a desired moment, positioned inside
35 the first insert piece. According to one embodiment, both insert pieces have a conical section which runs from their open end into a cylindrical section and, via a bevel, merges into a cylindrical section of smaller diameter.

40 Preferably, use is made of a standard size of drinks can in which there is sufficient space for at least 200 ml of drink and an insert piece with a volume of approximately 100 ml.

45 To optimize the heat transfer from the heating means to the drink, the surface of the insert piece has to be as large as possible. On the other hand, it is desirable for the production costs to be as low as possible, and consequently it is desirable for the amount of material used for the insert piece to be as small as possible. Both requirements result, inter alia, in an aim to keep the thickness of the material of the

insert piece as small as possible, so that the heat transfer per unit surface area is as high as possible.

In many cases, a drinks can is filled under pressure or a filled drinks can is subjected to a sterilization treatment. In both cases, the insert piece has to be able to withstand the pressure exerted on it without the walls being plastically deformed.

One drawback of the container which is known from American patent 3,802,056 is that the heat transfer in this container is relatively poor, since two insert pieces which have been pushed into one another are used. The use of two insert pieces also makes this container relatively expensive.

One object of the invention is to provide an improved insert piece.

Another object of the invention is to provide an insert piece which is as thin as possible without the walls being plastically deformed when pressure is applied to the insert piece.

Yet another object is to provide an insert piece which is optimal both in terms of production and in terms of heat transfer.

Yet another object is to provide an insert piece which can be used as a single insert piece in the container.

According to a first aspect of the invention, one or more of these objects are achieved with an insert piece of the type described in the preamble in which each section of the peripheral wall has a wall section of substantially constant diameter, and in which two adjacent sections are connected to one another by an annular transition which is substantially perpendicular to the wall sections.

This allows the insert piece to obtain a maximum level of rigidity for a given wall thickness, so that to obtain a required level of rigidity the thinnest possible wall thickness can be selected without the insert piece being deformed under the pressure required. This rigidity is produced in particular by the annular transitions. In addition, the sections of constant diameter offer the maximum possible surface area for the volume. Also, an annular transition is eminently suitable for absorbing a certain deformation in the longitudinal direction of the insert piece without the wall sections being plastically deformed.

The peripheral wall preferably comprises two sections of different diameters. In view of the length of a standard drinks can, two sections are sufficient to provide the insert piece with sufficient rigidity while the wall can be made sufficiently thin, and an insert piece comprising two sections is most favorable in terms of production.

Preferably, the section which adjoins the closed end of the insert piece has a smaller diameter than the diameter of the section which adjoins the open end. This design makes the insert piece easy to produce. Also, a space is formed between the insert piece and the wall of the container in which the insert piece is arranged, which is

greater at the closed end of the insert piece than at the section of the insert piece which is attached to the container. This design at any rate means that there is no space in the section of the container which is filled with product which is more or less separate from the remainder of the contents of the container and in which the product remains more or less enclosed. When a product is heated from the insert piece, the product in a separate space may begin to boil. Boiling of the product is undesirable, since this can cause the quality of the product to deteriorate and since the heat transfer to the product is significantly reduced. Also, the remainder of the product remains insufficiently heated. In the case of cooling of a product, ice may form in a separate section, while the remainder of the product remains insufficiently cooled. In other words, the shape according to the invention is such that there is minimum possible disruption to the convection along the insert piece.

The insert piece is preferably made from packaging steel. Steel is a relatively inexpensive material which is easy to process so as to obtain the desired shape of the insert piece. However, other materials, such as aluminum, could also be used if appropriate.

The packaging steel is preferably coated with plastic. This provides protection against corrosion and also against the product in the container being affected by the packaging steel.

According to a preferred embodiment, the insert piece is produced by deep-drawing. Deep-drawing is a very suitable way of producing a product having the shape of the insert piece, since elongate products with a closed end are easy to produce by deep-drawing. A peripheral wall comprising wall sections of constant diameter with annular transitions can be produced in a few deep-drawing steps with, at the same time, the section having the closed end being of a smaller diameter than the section having the open end.

According to a second aspect of the invention, a container for a product to be heated or cooled is provided, the container being provided, according to the invention, with an insert piece as described above.

A third aspect of the invention provides a process for forming an insert piece for a container for a product which is to be heated or cooled, which insert piece is used to accommodate a heating or cooling means, and which insert piece is of elongate form with a peripheral wall and an open end and a closed end. According to the invention, the insert piece is produced by deep-drawing in at least two deep-drawing steps, in such a manner that the peripheral wall of the insert piece is composed of two sections of different diameters.

The result is a process which makes it easy to produce an insert piece which is as rigid as possible.

Although the above text has primarily spoken of a drinks can holding a drink which is to be heated, it will be clear that the insert piece according to the invention is suitable for accommodating either a heating means or a cooling means, that the product to be heated or cooled may be either a drink, a foodstuff or some other type of product, and that the container, besides being a drinks can, may also be a different type of container.

The invention will be explained on the basis of an exemplary embodiment and with reference to the drawing.

The only figure shows a cross section through an insert piece according to the invention.

The insert piece 1 has a closed top end 2, a first wall section 3, an annular transition section 4 to a second wall section 5 and an outwardly projecting rim 6, the outer rim section 7 of which is provided for attachment to a container with an opening through which the insert piece fits.

The insert piece is produced by the deep-drawing of a blank of packaging steel which, in one embodiment, is coated with plastic. To produce the top and bottom sections, the deep-drawing is carried out in a number of steps, in which firstly the bottom section 5 and then the top section 3 is deep-drawn. If appropriate, the projecting rim 6 is formed in a separate step which is carried out in a conventional way.

The annular transition section 4 connects the top section 3 to the bottom section 5. This ring 4 imparts additional rigidity to the insert piece halfway up its height. In the event of an excess pressure being applied in a drinks can during filling under pressure or during pasteurization or sterilization, the wall section 3, 5 of the insert piece will be placed under pressure from outside. Without the ring 4, the height of the wall section is such that the wall section buckles if the material of the wall is too thin. The annular section 4 which is provided according to the invention in fact divides the total height into two halves which, on account of their lower (half) height, will buckle less readily, so that a thinner material can be used.

The annular section 4 itself may serve as a type of cup spring and can absorb a certain deformation in the longitudinal direction of the insert piece. However, in the event of an excess pressure it will be the top end 2 which buckles first.

It will be understood that the exemplary embodiment described above in no way limits the invention. The scope of protection is defined by the claims which follow.

CLAIMS

1. An insert piece for a container holding a product which is to be heated or cooled, which insert piece defines a substantially elongate space which is intended to accommodate a heating or cooling means, the insert piece having a peripheral wall with a closed end and an open end, which open end is provided with an outwardly projecting rim for attaching to the container, the peripheral wall comprising different sections, characterized in that each section of the peripheral wall has a wall section of substantially constant diameter, and in that two adjacent sections are connected to one another by an annular transition which is substantially perpendicular to the wall sections.
2. The insert piece as claimed in claim 1, characterized in that the peripheral wall comprises two sections of different diameters.
3. The insert piece as claimed in claim 2, characterized in that the section which adjoins the closed end of the insert piece has a smaller diameter than the diameter of the section which adjoins the open end.
4. The insert piece as claimed in one of the preceding claims, characterized in that the insert piece is made from packaging steel.
5. The insert piece as claimed in claim 4, characterized in that the packaging steel is coated with plastic.
6. The insert piece as claimed in one of the preceding claims, characterized in that the insert piece is produced by deep-drawing.
7. A container for a product which is to be heated or cooled, provided with an insert piece as claimed in one of the preceding claims.
8. A process for forming an insert piece for a container for a product which is to be heated or cooled, which insert piece is used to accommodate a heating or cooling means, and which insert piece is of elongate form with a peripheral wall and an open end and a closed end, characterized in that the insert piece is produced by deep-drawing in at least two deep-drawing steps, in such a manner that the peripheral wall of the insert piece is composed of two sections of different diameters.

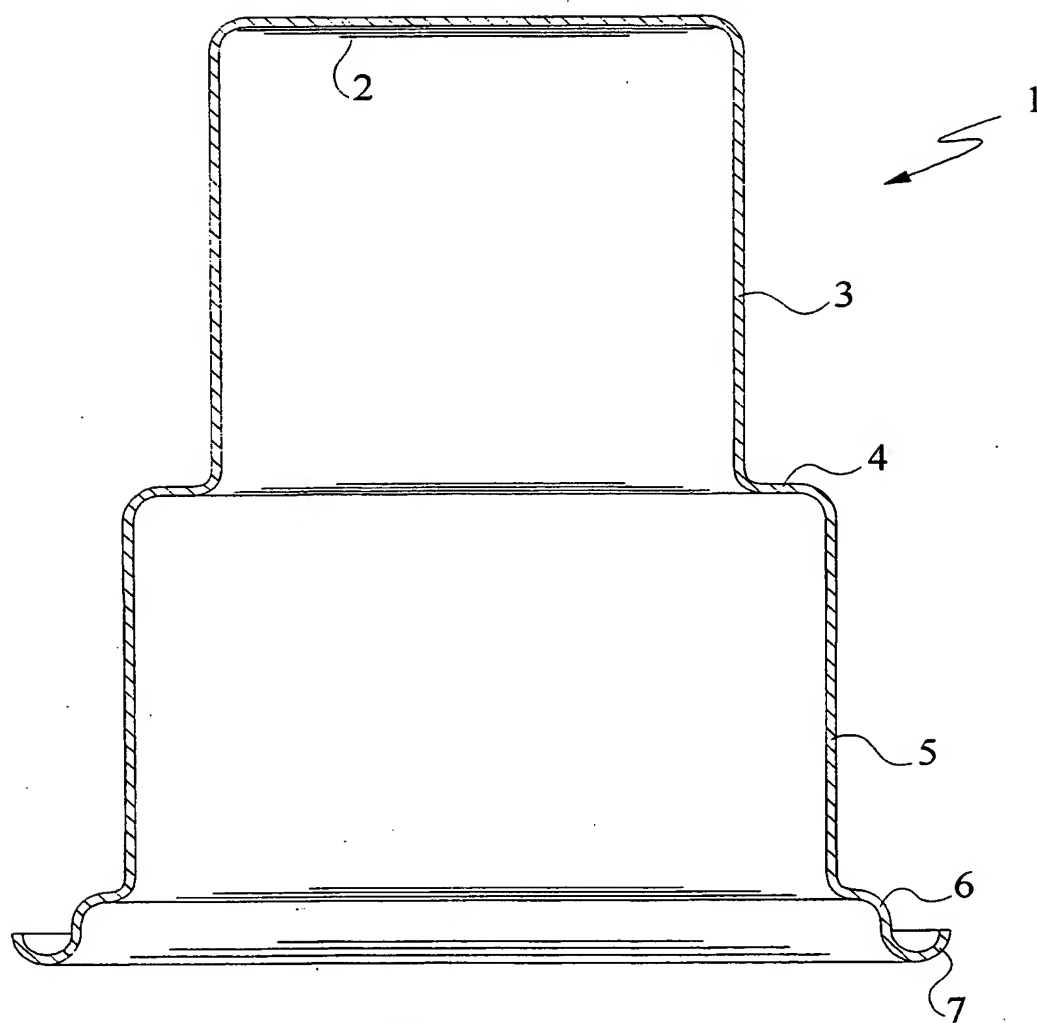


Fig. 1

INTERNATIONAL SEARCH REPORT

National Application No.

PCT/NL 00/00593

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B21D51/26 B21D22/26 B65D81/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B21D B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 802 056 A (JAEGER W) 9 April 1974 (1974-04-09) cited in the application the whole document ---	1,7,8
A	US 4 914 937 A (BULSO JR JOSEPH D ET AL) 10 April 1990 (1990-04-10) ---	
A	GB 2 261 501 A (HUANG KIN SHEN) 19 May 1993 (1993-05-19) ---	
A	US 3 970 068 A (SATO SHOTARO) 20 July 1976 (1976-07-20) ---	
A	US 4 741 324 A (INA SHIZUO ET AL) 3 May 1988 (1988-05-03) -----	

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

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- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
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- *&* document member of the same patent family

Date of the actual completion of the international search

22 November 2000

Date of mailing of the international search report

29/11/2000

Name and mailing address of the ISA

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Peeters, L

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NL 00/00593

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3802056	A	09-04-1974	US 3726106 A	10-04-1973
US 4914937	A	10-04-1990	US 4782685 A	08-11-1988
			GB 2213082 A, B	09-08-1989
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			JP 1150418 A	13-06-1989
			JP 2610958 B	14-05-1997
			SG 4193 G	12-03-1993
GB 2261501	A	19-05-1993	NONE	
US 3970068	A	20-07-1976	JP 50008687 A	29-01-1975
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			JP 61253023 A	10-11-1986
			GB 2178161 A, B	04-02-1987

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference H01009PCT/Kr/K	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/NL 00/ 00593	International filing date (day/month/year) 25/08/2000	(Earliest) Priority Date (day/month/year) 30/08/1999
Applicant CORUS STAAL BV et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 02 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 00/00593

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Peeters, L

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NL 00/00593

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